Volume 3 Issue 2

Spring 2003

Communicable Disease Control UPDATE

MECKLENBURG COUNTY HEALTH DEPARTMENT

Disease Detectives

From the Editor...

Where oh Where is SARS?

SARS has dominated the media for the last several months and has been a primary focus of Communicable Disease Control during that time. Information on SARS changes frequently, often daily, so current information cannot be provided in a quarterly newsletter. For the latest, most accurate information, please visit the CDC's website at www.cdc.gov. Information on local events and advisories can be found at the Health Department's website at www.meckhealth.org or by calling 704.336.6438. The Health Department sends out "blast faxes" to area health providers when pertinent information becomes available. We understand that these Health Alerts can be lost or overlooked in busy offices. Health Alerts from the Health Department appear with the county seal on letterhead stationery as shown below. When these alerts are received, please circulate or post prominently in your office.

Health Alert **Mecklenburg County Health Department** **Health Alert**

To receive these Health Alerts via e-mail, please contact Lorraine Houser at houselm@co.mecklenburg.nc.us or 704.336.6438 with your e-mail information.

Spox Vax Regional

Phase 1 of the state's smallpox vaccination program finished in April. Region 7 vaccinated 315 people and revaccinated 10. Of these, 111 were public health personnel and 184 were hospital employees. The remainder were FBI personnel.

North Carolina has no immediate plans for Phase 2 of the program due to unreconciled compensation issues and lack of financial support to implement the large undertaking.

For more information, contact Belinda Worsham at worshbs@co.mecklenburg.nc.us or 704.432.1971.

County	Health Department	Hospital	FBI	Total
Alexander	2	0	0	2
Anson	9	0	0	9
Cabarrus	5	13	0	18
Catawba	15	68	3	86
Cleveland	6	0	0	6
Iredell	5	51	0	56
Lincoln	2	0	0	2
Mecklenburg	5	0	17	22
Rowan	18	47	0	65
Stanly	7	29	0	36
Union	2	11	0	13

Perinatal Hepatitis B Prevention-Year 2000 Births

Since 1990, physicians in North Carolina have been required to test all pregnant females for hepatitis B virus. The law requires that hepatitis B surface antigen (HBsAg) positive patients must be reported to the local Health Department. Communicable Disease Control nurses at local health departments in North Carolina are tracking the exposed infants to assure that proper immunoprophylaxis and post-vaccination serologic testing are done. Post-vaccination testing is needed to determine the success of the prophylaxis and identify infected infants and infants in need of re-vaccination. The Communicable Disease Control nurses at the Mecklenburg County Health Department have tracked the exposed infants for the last 6 years.

Infants who become infected by perinatal transmission have a 90% risk of chronic hepatitis B infection, and up to 25% of the chronically infected infants will die of liver disease as adults. Treating exposed newborns with Hepatitis B Immune Globulin (HBIG) and the Hepatitis B vaccine (HBV) series is 85-95% effective at preventing chronic Hepatitis B infection.

The rate of HBsAg positive women giving birth in Mecklenburg County was significantly higher than the state average in 2000 (35 per 10,000 births in Mecklenburg; 15 per 10,000 births in North Carolina). The Mecklenburg County Health Department tracked 43 infants born in 2000 who had perinatal exposure to Hepatitis B. 95% of these infants received HBIG and HBV at birth. 81% of infants received the third dose of hepatitis B vaccine by age 8 months (compared to the state average of 64%). 78% of the infants who completed the 3rd dose of hepatitis B vaccine received post-vaccination testing (compared to the state average of 45%). Thirty infants (78%) born in Mecklenburg County in 2000 were tested in Mecklenburg County and none were infected. Two of the 67 infants born in North Carolina in 2000 who were tested were found to be infected with Hepatitis B. Both infected infants received proper immunoprophylaxis.

In 1999, three infants in North Carolina were infected with Hepatitis B virus from perinatal exposure and one had evidence of past infection. One infant born in 1999 (but not reported and tracked) in Mecklenburg County was found to be positive for HBsAg. This infant was not tracked by the Health Department since the obstetrician did not report the HBsAg positive mother to the Health Department.

Stringent efforts must be continued in both the public and private sectors to ensure all pregnant females are tested for Hepatitis B, all pregnant females who are HBsAg positive are reported to the Health Department, all exposed infants are given immunoprophylaxis according to CDC guidelines, and all exposed infants receive post-vaccination testing.

For more information, please contact Jane Hoffman at 704.336.5490 or hoffmlj@co.mecklenburg.nc.us .

Summary of Infants Born to Reported Hepatitis B Positive Mothers

	North Carolina Year 2000	Mecklenburg County Year 2000
Total Live Births to HBsAg Positive Women Rate per 10,000 Live Births	183 15 per 10,000 births	43 35 per 10,000 births
No. Infants Tracked by Local Health Department	183	43
No. Infants Who Received HBIG and Hepatitis B Vaccine at Birth	172 (94%)	41 (95%)
No. Infants Who Received Third Hepatitis B Vaccine by age 8 Months	117(64%)	35 (81%)
No. Infants Who Received Third Hepatitis B Vaccine by Age 12 Months	150 (82%)	38 (88%)
No. Infants who Received Post-Vaccination Testing	67(45%) 45% of infants who completed 3rd vaccine	30 (78%) 78% of infants who completed 3rd vaccine
No. Infants who Tested HBsAg Positive	2 (3%) 3% of infants who were tested	0 (0%) 0% of infants who were tested
No. Infants Who Moved Out of State	19 (10%)	5 (12%)

State Center for Health Statistics: Total Live Births Year 2000: North Carolina 120,247; Mecklenburg County 12,176
Infant Vaccination and Serology Information compiled by Patricia T. Poole, RN, Immunization Branch, NC DHHS

CUTANEOUS LARVA MIGRANS

Now that the summer is approaching the American Southeast, many humans, especially children, will be outdoors with their pets–cats and dogs in particular. Few will realize the zoonotic importance of controlling internal parasites such as *Ancylostoma braziliense,* a third stage larva of the common dog and cat hookworm. Dogs and cats are the primary hosts of this parasite with humans being incidental hosts. The larva cannot complete its life cycle in humans thus it is a self-limiting disease.

The eggs carrying the filariform are expelled in the feces of cats and dogs and are then deposited in sand boxes and damp, sandy soil of seashores and wetlands. The eggs incubate in warm, wet soil and larvae emerge with the ability to burrow into human skin. Humans traversing these areas are at risk of the larva entering exposed skin. The larva migrates intracutaneously and will penetrate into deeper tissues leaving a papule at the site of entry. As migration occurs through dermal layers and underlying tissue at a rate of several millimeters per day, sinuous tunnels develop. This produces itching which the patient scratches until a bacterial infection usually develops on hands, legs, and feet.

Should the larva invade lung tissues, a temporary pneumonitis results elevating IgE immunoglobulins and larvae can be recovered in sputum for a definitive diagnoses. Another species of the larva *(Ancylostoma canimum)* occasionally migrate to the small intestine and may result in eosinophilia enteritis. These infections respond especially well to pyrantel pamoate or mebendazole.

Cure is spontaneous after several weeks and can be accelerated with the systemic administration of ivermectin and albendazole. Topical ointments containing thiabendazole are an effective treatment when applied to the papules that form at the larva's entry site. The introduction of these two larvae is usually characterized by severe erythema, quick progression, and rapid disappearance.

How to avoid infection with *A. braziliense* and *A. caninum* larvae:

- Wear gloves when gardening.
- Do not allow dogs and cats into sandboxes where children play.
- Do not allow pets to run unattended on beaches and lakeshores.
- Have your veterinarian treat all small pets (dogs and cats) with anthelmintic drugs.
- Always wear shoes when walking in wet, sandy soil during summer months.

For more information, contact Al Piercy at piercaw@co.mecklenburg.nc.us or 704.336.6440.

References:
Acha, Pedro N. and Boris Szfres. "Cutaneous Larva Migrans." Zoonoses and Communicable Diseases Common to Man and Animals. 2nd Edition. Washington: Pan American Health Organization, 1987.
Chin, James, ed. "Cutaneous Larva Migrans." Control of Communicable Diseases Manual. 17th Edition. Washington: American Public Health Association, 2000.

FAQ

Q. Does the HIPAA Privacy Rule allow me to continue to report patients with communicable diseases to the Health Department?

A. Yes. The privacy rule states a health care provider may disclose protected health information to a public health authority if state law requires such disclosures. North Carolina law requires physicians and laboratories to report known or suspected cases of reportable diseases to local health departments. The patient's permission or consent is not needed to release reportable disease information to the local health department.

Q. Can serological testing be used to confirm a diagnosis of pertussis?

A. Serological testing for pertussis has proven useful in clinical studies and is used by some clinicians for diagnosis. Since serological testing has not been standardized, it is not acceptable for state and national communicable disease reporting. The state public health laboratory offers two laboratory tests: pertussis culture and pertussis DFA.

Q. Our office has reported several cases of Rocky Mountain Spotted Fever to the Health Department on the CD Report Cards yet your monthly disease statistics don't reflect these cases. Are we missing something?

A. The CDC has a very specific case definition for RMSF. A *probable* case is defined as a clinically compatible case characterized by acute onset and usually accompanied by myalgia, headache, and petechial rash (on the palms and soles in two thirds of the cases) with a single IFA serologic titer of ≥64 or a single CF titer of ≥ 16 or other supportive serology (fourfold rise in titer or a single titer ≥ 320 by Proteus OX-19 or OX-2, or a single titer ≥ 128 by an LA, IHA, or MA test).
A *confirmed* case is defined as a clinically comparable case that is laboratory confirmed. Laboratory criteria for diagnosis includes:

- Fourfold or greater rise in antibody titer to Rickettsia rickettsii antigen by immunofluorescence antibody (IFA), complement fixation (CF), latex agglutination (LA), microagglutination (MA), or indirect hemagglutination antibody (IHA) test in acute and covalescent-phase specimens ideally taken ≥ 3 weeks apart, or
- Positive polymerase chain reaction assay to R. rickettsii, or
- Demonstration of positive immunofluorescence of skin lesion (biopsy) or organ tissue (autopsy), or
- Isolation of R. rickettsii from clinical specimen

The Future of Syphilis

Eliminating syphilis in Mecklenburg County has moved from possibility to probability. The CDC funded efforts to provide and organize syphilis prevention, education, treatment, and testing in certain high morbidity areas has led to declining syphilis rates in Mecklenburg County and other cities across the nation. With the sequencing of syphilis, TB, malaria, and N. meningitides genomes in 1998, clues were provided that may lead to the development of better ways to diagnose, treat, and prevent syphilis. This may indeed be the knockout punch that finalizes the intensive and focused education and testing efforts of Syphilis Elimination Projects.

Prevention

For years, the syphilis bacterium, *Treponema pallidum,* has been almost impossible to study because it could not be cultured or grown in the laboratory. Therefore, developing vaccines, treatments, and tests for syphilis is very difficult and expensive. The sequencing of syphilis has opened the door to the development of new vaccines and new ways to grow syphilis in the laboratory. Vaccines are the easiest, most practical, and effective method of prevention for syphilis and many other diseases.

Diagnosis

Syphilis is a very difficult disease to diagnose. Symptoms can be mild or absent in the early stages, and early symptoms mimic those of many other diseases. Moreover, interpreting blood tests can be very difficult. Syphilis tests can give false negative results for up to 3 months after infection and repeated tests are often needed to confirm the diagnosis. Again, genome sequencing will allow diagnostic tests that are more specific, more accurate, and easier to use.

Over the last few years, work has been done to develop new tests for syphilis that will both screen and confirm the result using an oral fluid sample in a similar manner to the OraSure HIV test that already has FDA approval. Other rapid tests, which can use either an oral fluid or a blood-based sample to produce results in about 20 minutes, are being developed. These tests will be a great advantage to street-based outreach testing or clinical laboratories.

Treatment

Syphilis is generally treated with IM injections of penicillin. About 10% of the population is allergic to penicillin. The other course of treatment requires oral medication taken twice daily for 14 to 28 days. An oral, single dose treatment is needed for greater patient compliance. The genetic mapping of syphilis will allow for the development of more specific targeted antibiotics.

A safe, effective, single-dose antibiotic treatment for syphilis may be just around the corner. I.V. Azithromycin seems to be a better treatment option for acute PID. Thus far a few studies show promising data that syphilis may be treated with a 2-gram dose of oral Azithromycin just as effectively as the current accepted treatment options of Penicillin injections or 2 or more weeks of treatment with Doxycycline. If this is true then gonorrhea, Chancroid, Chlamydia, NGU, and maybe syphilis may all be effectively treated with a single 2-gram oral dose of Azithromycin. The studies also show that this may be the more cost effective treatment for STD clinics and high morbidity areas. So… the list goes like this; wide spread ability to treat a host of STD's, less side effects, less drug interaction, less frequent and less prolonged treatment, and thus more patient compliance. Sounds like we have a winner!

For more information, contact Mike Rogers at rogermp@co.mecklenburg.nc.us or 704.336.3737.

References:

- The Scientist 14[8]:10, Apr. 17, 2000 NEWS. New Era in Vaccine Development. Researchers take advantage of microbial genome data. By Nadia S. Halim.
- NIAID NEWS. For release: Thursday, July 16, 1998. Syphilis Genome Sequence Offers Clues to Better Diagnosis, Prevention, and Treatment. June R. Wymann; jwyman@nih.gov.
- Other STD Issues: HIV-STD Transmissions, Screening for Neurosyphils, and Clinical Vignettes, Highlights from the 2002 STD Conference. From Medscape Infectious Diseases.
- Hook EW 3d, et al. Azithromycin compared with penicillin G benzathine for treatment of incubating syphilis. Ann Intern Med September 21, 1999; 131; 434-7.
- Treatment of early syphilis with azithromycin. J Chemother 2000 Jun; 12(3): 240-3 (ISSN: 1120-009X) Gruber F; Kastelan M; Cabrijan L; Simonic E; Brajac I. Department of Dermatology, Clinical Hospital Center, Medical School, Rijeka, Croatia.
- A randomized, comparative pilot study of azithromycin versus benzathine penicilli G for treatment of early syphilis. Sex Transm Dis 2002 Aug; 29(8): 486-90 (ISSN: 0148-5717) Hook EW; Martin DH; Stephens J; Smith BS; Smith K. University of Alabama Birmingham School of Medicine and ; Jefferson County Department of Health, Birmingham, Alabama 35294-0007, USA. Ehook@uab.edu.
- Medscape DrugInfo, With First DataBank and ASHP. AZITHROMYCIN ORAL. Medscape Today. Medscape from Web MD. Jan. 20, 2003.

Did you know…

…that Shigella is finally showing signs of slowing down? At the beginning of the outbreak in August 2002, 19 new cases were identified. October 2002 showed 176 cases and November's peak was 188 cases. March of this year showed 46 new cases and April reports 29 new cases. For additional information on the outbreak, go to the Health Department's website at www.meckhealth.org and click on Communicable Disease Control and the Child Care Nurse Consultant page.

Reportable Diseases In North Carolina

Telephone reports are requested within 24 hours for diseases of unusual significance, incidence, or occurrence which may merit an epidemiological evaluation; and foodborne and waterborne outbreaks where a common source is suspected.

Telephone reports should include the following information:
disease; date of onset; patient name/address/phone number/age/race/sex; laboratory confirmation (yes or no); name and phone number of person making the report.

Report within 24 hours (by phone and card)

Anthrax
Botulism
Campylobacter infection
Chancroid
Cholera
Cryptosporidiosis
Cyclosporiasis
Diphtheria
E. coli, Shiga toxin-producing
Foodborne Disease
Gonorrhea
Granuloma Inguinale
H. Influenzae, Invasive Disease
HUS/Thrombotic Thrombocytopenic Purpura
Hepatitis A
Hepatitis B, Acute
Listeriosis
Measles (Rubeola)
Meningococcal Disease
Plague
Polio, Paralytic
Rabies, Human
Rubella
Salmonellosis
SARS
Shigellosis
Smallpox
Syphilis, All Stages
Tuberculosis
Tularemia
Typhoid, Acute
Vaccinia
Vibrio Infections
Viral Hemorrhagic Fever
Whooping Cough

Report within 7 days (by card)

AIDS
Brucellosis
Chlamydia
Dengue
Ehrlichiosis, Granulocytic
Ehrlichiosis, Monocytic
Encephalitas, Arboviral
Enterococci, Vancomycin resistant
Hantavirus Infection
Hepatitis B, Carrier
Hepatitis C, Acute
HIV infection
Legionellosis
Leptospirosis
Lyme Disease
Lymphogranuloma Venereum
Malaria
Meningitis, Pneumococcal
Mumps
Nongonococcal Urethritis
Psittacosis
Q Fever
Rocky Mountain, Spotted Fever
Rubella Congenital Syndrome
Streptococcal Infection, Group A, Invasive Disease
Tetanus
Toxic Shock Syndrome
Toxoplasmosis, Congenital
Transmissible Spongiform Encephalopathies (CJD/vCJD)
Trichinosis
Typhoid Carriage
Typhus, Epidemic louse-borne
Yellow Fever

Reporting Communicable Diseases – Mecklenburg County

To request N.C. Communicable Disease Report Cards, telephone 704.336.2817

Mark all correspondence "CONFIDENTIAL"

Tuberculosis:

TB Clinic 704.921.6170
Mecklenburg County Health Department FAX 704.921.6133
251 Eastway Drive
Charlotte, NC 28213

Sexually Transmitted Diseases, HIV, & AIDS:

Regional Office HIV/STD Surveillance 704.336.6480
Mecklenburg County Health Department FAX 704.336.6200
700 N. Tryon Street, Suite 214
Charlotte, NC 28202

All Other Reportable Communicable Diseases including Viral Hepatitis A, B & C:

Report to any of the following nurses:

Shannon Gilbert, RN 704.353.1270
Nancy Hill, RN, 704.336.5498
Jane Hoffman, RN, 704.336.5490
Lorraine Houser, RN 704.336.6438
Monica O'Lenic, RN 704.336.6436
Elizabeth Quinn, RN 704.336.5398
Communicable Disease Control FAX 704.353.1202
Mecklenburg County Health Department
700 N. Tryon Street, Suite 271
Charlotte, NC 28202

Animal Bite Consultation / Zoonoses / Rabies Prevention:

Al Piercy, RS 704.336.6440
Communicable Disease Control FAX 704.353.1202
Mecklenburg County Health Department
700 N. Tryon Street, Suite 272
Charlotte, NC 28202
or State Veterinarian, Lee Hunter, DVM 919.733.3410
State after hours 919.733.3419

Child Daycare Nurse Consultant:

Gail Mills, RN 704.336.5076
Communicable Disease Control FAX 704.353.1202
Mecklenburg County Health Department
700 N. Tryon Street, Suite 271
Charlotte, NC 28202

Suspected Food borne Outbreaks / Restaurant, Lodging, Pool and Institutional Sanitation:

Food & Facilities Sanitation 704.336.5100
Mecklenburg County Health Department FAX 704.336.5306
700 N. Tryon Street, Suite 208
Charlotte, NC 28202

Mecklenburg County Health Department

WNV—'Tis the Season

The CDC recommends the use of DEET-based repellants to help reduce exposure to mosquito bites that may potentially carry the West Nile Virus. DEET is the common name for N, N-diethyl-m-toluamide, a substance that disrupts the ability of biting insects to detect the source of carbon dioxide given off by a person's skin and breath. The carbon dioxide is what attracts mosquitoes and other insects to people. The insects are not killed when DEET is used-they just can't find their "prey' for a period of hours, depending on the DEET concentration. The July 4, 2002 edition of the New England Journal of Medicine (www.nejm.org) reported that several controlled independent studies determined that insect repellants containing DEET provided complete protection from bites for longer periods than other widely used repellants. These DEET based repellants should not cause adverse side effects when used in accordance with label directions.

DEET has been tested more rigorously for toxicity than any other insect repellant available since it was approved as a repellant for public use in 1957. Use of DEET products may rarely cause skin reactions in some individuals. There is no scientific evidence to suggest that DEET causes harmful reproductive effects and no direct relationship has been established between DEET use and carcinogenicity in humans. DEET can penetrate through human skin, and once in the body, it is eliminated in the urine. Peak concentrations in the urine occur several hours after application and, based on this information, DEET is not expected to accumulate in the body. DEET products come in a variety of concentrations and forms; the more DEET in the product, the longer lasting the protection against mosquitoes and ticks. ***DEET can be used with confidence on any individual age two and up as long as label directions are followed.***

DEET and Children

There are no definitive studies in scientific literature about what concentration of DEET is safe for children. The American Academy of Pediatrics has recommended that a cautious approach would be to use products containing 10% to 15% or less on children aged 2-12 and concentrations around 30% for adults and children. DEET concentrations higher that 50% do not increase the length of protection. In addition, ***the EPA has recommended that DEET products should not be applied to infants under 2 months of age since skin permeability does not become similar to adult values until the second month of life.***

Sunscreen and Children

The EPA has not approved the use of products formulated with sunscreens. Insect repellants should be used sparingly and only up to a few times a day, while sunscreens should be used every time a child returns from swimming, which can be many times a day. The American Academy of Dermatology recommends use of sunscreens with an SPF of at least 15 beginning at 6 months of age. Infants younger than six months should be kept out of direct sunlight. The use of sunscreens with PABA or alcohol is not recommended as they tend to irritate the skin.

DEET and Ticks

Ticks are most active from April through October. The best protection against arthropod bites is achieved by avoiding infested habitats, wearing protective clothing and applying a DEET based insect repellant The protection provided by a DEET based product depends on the DEET concentration-the higher the concentration of DEET, the longer the amount of protection. Most commercially available products now contain 40% DEET or less.

For more information, contact Gail Mills at millsgb@co.mecklenburg.nc.us or 704.336-5076.

Pediarix

PEDIARIX™ was approved by the FDA in December 2002 to protect infants *six weeks of age an older* against diphtheria, tetanus, acellular pertussis, hepatitis B, and polio (DTaP-HepB-IPV). ACIP voted that PEDIARIX™ may be used for ALL infants six weeks of age and older, including those born to HBsAg positive mothers and to mothers whose HBsAg status is unknown. *However, for optimal prevention of perinatal infection, infants born to women who are HBsAg+ must receive their first dose of single antigen Hepatitis B vaccine and hepatitis B immune globulin (HBIG) within 12 hours of birth and ≥ 3 doses of HBV by 6 months of age. Women of unknown HBsAg status who give birth should be tested for HBsAg immediately and their infants administered single antigen HBV within 12 hours of birth; these infants also should receive HBIG if the woman is found to be HBsAg+.* Use of PEDIARIX™ after single antigen HBV is administered at birth will result in a 4-dose HBV series. This is considered acceptable by the ACIP. PEDIARIX™ is **not** approved for booster doses such as the 4th dose of IPV or the 4th and 5th dose of DTaP. The ACIP voted to recommend that even if the mother is HBsAg-negative that the birth dose of monovalent hepatitis B vaccine remain part of the infant immunization schedule when Pediarix is used.

For more information, contact Monica O'Lenic at olenimt@co.mecklenburg.nc.us or 704.336.6436.

This periodical is written and distributed quarterly by the Communicable Disease Control Program of the Mecklenburg County Health Department for the purpose of updating the medical community in the activities of Communicable Disease Control. Program members include: Health Director—Peter Safir; Medical Director—Dr. Stephen R. Keener; Health, Environmental Health Administrator—Bobby Cobb; Director, CD Control—Carmel Clements; Program Chief—Wanda Locklear; CD Control nurses—Shannon Gilbert, Nancy Hill, Jane Hoffman, Lorraine Houser, Monica O'Lenic, Elizabeth Quinn; TB Outreach nurses—Marcia Frechette (also Adult Day Health), Faye Lilieholm; Child Care nurse—Gail Mills ; Rabies/Zoonosis Control—Al Piercy; ; Program Chief STD/HIV Surveillance—Carlos McCoy; Syphilis Coordinator— Ann White; DIS—Mary Ann Curtis, Michael Rogers, Lavon Sessoms; Regional Surveillance Team—Bobby Kennedy, Belinda Worsham; Office Assistants—Linda Kalman, Lisa Liner.

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Communicable Disease Control UPDATE

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